

Amendments to Application no. 10/707,919

Amendments to claims

Claims

1. (Currently amended) A Method for sterilizing fluent material (air or gas) in large volume (300cfm to 30,000 cfm) by intensive radiation of 253.7nm wavelength ultraviolet rays, said method comprising the steps of: (a) - guiding and/or forcing fluent material through filter(s) to remove large particles (1um to 10um); (b) using circuitous sterilizing chamber(s) internally constructed as continually circuitous tunnel(s), with such as roundabout path(s), or spiral path(s), or sinuous path(s), or zigzag tunnel(s), path(s), or other similar shapes of paths to contain said fluent material; (c) employing intense 253.7nm wavelength UV irradiation to kill all live microorganisms in said fluent material passing through said chamber(s); ~~(d) converting ozone in air into oxygen when dealing with air;~~ (e) discharging sterilized fluent material out of said chamber(s).

2. (Currently amended) Apparatus for sterilizing fluent material (air or gas) in large volume (300cfm to 30,000 cfm) by radiation of 253.7nm wavelength ultraviolet rays, said apparatus comprising: (a) an inlet 1 guiding in fluent material for sterilizing; (b) a power unit 2 positioned in said inlet 1; (c) an inlet filter 3 connected with said inlet 1 to remove fairly large particles (1um to 10um) from said fluent material; (d) a circuitous sterilizing chamber 10 connected with said inlet filter unit 3; (e) a group of 253.7nm wavelength UV light tubes 15 positioned, along with the flow direction, inside said chamber 10 providing high-density ultraviolet radiation to irradiate passing said fluent material; (f) connected with said chamber 10, an optional outlet filter unit 13 to remove any particles larger than the requirements of applications (0.3um to 5um); ~~(g) a catalytic filter comprised in said outlet filter unit 3 to convert ozone into oxygen;~~ (h) an inspection window or sample faucet 12 for taking testing samples; (i) an outlet 11 extending from said outlet filter 13 to discharge sterilized fluent material.

3. (Currently amended) The apparatus of claim 2 wherein said circuitous sterilizing chamber 10 may constructed internally by interior walls as continually circuitous tunnel(s), such as form roundabout path(s), or spiral path(s), or sinuous path(s), or zigzag tunnel(s), path(s) or other similar shapes of paths for the purpose of increasing UV exposure.

4. (Currently amended) The apparatus of claim 2 wherein said chamber 10 is constructed with smooth curved flow guiding interior 7 at every turning section to form ~~flow~~ low flow resistant chamber.

5. (Currently amended) The apparatus of claim 2 wherein said chamber 10 has had polished internal reflecting mirror surfaces 9 to increase UV killing power effect.

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6. (Original) The apparatus of claim 2 comprises UV visual inspection window(s) 5 in every section of said chamber 10.

7. (Original) The apparatus of claim 2 further comprises UV sensor(s) 6 in every section of said chamber 10 as autofeedback mechanism.

8. (Original) The apparatus of claim 2 further comprises an inspection window or a sample faucet 12 on said outlet 11.

9. (Original) The apparatus of claim 2 wherein ozone generation is suppressed by use of non-ozone germicidal lamps.

10. (Currently amended) The apparatus of claim 2 wherein an optional outlet filter unit 13 ~~includes a catalytic filter to convert ozone into oxygen when dealing with air.~~



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